

# Has Occupational Health and Safety in Australia Progressed in the Last 25 Years? Critical Reflections of an Occupational Health and Safety Professional.

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As the new millennium approaches I have reflected upon my approx 25 years in the Occupational Health and Safety profession and I have to ask myself if the profession has really progressed in that period.

Here is my story.

I became involved in Occupational Health and Safety in 1975 before it became popular and my first real safety position was as Assistant Safety Adviser with an open-cut mine. I was 21 years of age, shy and new to the world of mining. Approx 3 months after I started work at the mine an employee was crushed (spinal column injuries leading to paraplegia) between the shoe and a step protruding over the shoe of a dragline (massive piece of earthmoving equipment designed to remove the earth or overburden from above the coal seam) One of the factors essential to the incident was the fixed nature of the protruding step (approx 3 years later at another mine I saw more draglines being built with the same design feature. Obviously the company building the machines and the company ordering the draglines had not learnt from the incident where the employee was made a paraplegic) The thought occurred to me at this time that there was something fundamentally wrong with the way safety was being managed in the industry. It would not surprise me if draglines are currently being built around the world with this same fundamental design feature (one general observation I have is that as a nation we do not collect and disseminate information about incidents well and consequently do not learn as well as we could from them)

During my time at this particular mine an office girl was injured in a motor vehicle incident driving a company car from the nearby town to the mine-site. She was reportedly driving very fast around a curve, it appeared she was not wearing a seat belt, the car rolled several times and she was catapulted out through the windscreen. I was quickly on the scene and as I watched her battered frame while waiting for the ambulance to arrive I felt a strong sense of loss and failure. She died in hospital the next day. The girl was young, attractive, friendly and very popular. She had every thing going for her. The reasons which emerged as to why she was driving so fast are quite sensitive but I have to say society and possibly the safety profession failed her. The people who said she was doing the wrong thing and got what she deserved did not understand the basis of the problem and contributed little towards preventing similar incidents

It was about this time that I really thought about the 2 major approaches to safety that are to be found in most industrialised countries—the behaviourist and the engineering approach. I have heard strong arguments for and against each approach. There are the behaviourists, the extreme usually being some employers, who take the view that if only these idiots we have got working for us did the right thing and were more careful we would not have accidents. These people can tend to blame the worker without looking carefully at the equipment the workers uses and the environment in which it is used. They do not consider the impact equipment, environment and systems of work have on behaviour. I have investigated a number of incidents and initially have been astounded by the behaviours that contributed to the incident (blaming people for their past actions is usually not a good way to achieve positive change for the future) In a number of cases however I have found approaching the investigation with an open mind has led to identifying a number of non-behavioural factors that can be used to positively influence change for the future. There have been a considerably lesser number of incidents where I have had to conclude the person's behaviour was the major essential factor in the incident and that behaviour change is the only remedy. There may be cases where it seems counselling and disciplining for doing the wrong thing are the best way of achieving positive change for the future (I just urge a thorough investigation and advise not to approach it with the view of only finding fault). The National Safety Council's "Safe Behaviour Involvement" programme is probably the most well known behaviour-based safety programme in Australia at the moment (these programmes are prominent in the United States but I have had problems sorting out the rhetoric from the fact in reports I have read about the success of their implementation in the U.S.A.) I remember talking to a foreman at one location I worked at about his experiences as an infantry soldier in Vietnam, he maintained what kept him alive in a very hostile environment was that fact he was switched-on, careful all the time and remembered his training. His comments convinced me there is a lot to be said for a behavioural approach to safety. Implementing a well-structured Safety programme and creating an expectation of safe behaviour can have significant effects (refer to the paper "What Makes a Safety Programme Fly" by this

author for advice on the necessary ingredients for a successful safety programme). Some Occupational Health and Safety professionals whose opinion I respect have told me Dupont behaviour-based approaches to safety have some merit, I cannot comment as I have not experienced them. Perhaps someone out there could help me out with information about behaviour-based approaches to safety in Australia?

At the other end of the spectrum are the engineering approach adherents, the extreme being seen in some union officials. They may tend to blame the employer at all cost and ignore the reality that the employee must take a duty of care for himself and others around him. They expect the employer to spend thousands of dollars on extreme safety arrangements when a bit of responsibility can be a solution. One counter-argument to the engineering approach I had presented to me was that if you make most things safe by engineering controls, you encourage the worker not to think about his work and you make it more likely he will come to grief eventually. My experience in Occupational Health and Safety has led me to believe the engineering approach was not used enough in the companies I worked for, there are so many cases where making positive engineering changes (putting a non-slip coating on a smooth steel-trowelled concrete walkway) are so much more reliable than truck loads of exhorting people to be careful(walk slowly on that concrete when it is wet from rain) The good thing about engineering controls is they do not come to work tired, sick, hungover, drunk, stoned, physically and mentally unsuited to their work, unmotivated, distracted by personal problems, untrained or for some other reason not really thinking.

Both the engineering and behavioural approaches have their strengths and weaknesses, the wise manager uses the strengths of each without succumbing to the weaknesses. Keep in your mind the aim of our safety efforts is positive change for the future.

My next safety position was as Safety Adviser with another mine. During my time at this mine an electrician received serious burns (18 months off work) after a 415 volt electrical explosion. The consensus of opinion around the mine was that he had done the wrong thing and this was the cause of the incident. Subsequent investigations revealed, yes, he had done the wrong thing, but there were clearly good reasons why he did what he did. My view after I really understood what had happened, was that he was injured because of an inappropriate design feature of the switchboard he was working on. After this incident the mine engaged Geoff McDonald to lead a Critical Incident Recall process that extended over some 6 months in the electrical department (critical incident recall is a structured process where information about critical incidents or near-misses are surfaced and used as a basis for safety change). I have been to the courses on safety (including those at universities), attended the safety conferences and seminars, watched the videos, read the books widely and listened to the so-called safety gurus from overseas (internal to the companies I have worked for and those external) Nothing has impressed me as much as the work Geoff McDonald did with critical incident recall. I have written on this subject for the Safety Institute of Australia journal and speak about it at conferences when I get a chance. To my mind you are failing as an Occupational Health and Safety professional if you are not using a properly structured programme of critical incident recall (refer to the paper "Practical Application of the Critical Incident Recall Technique" by this author).

Another notable, but tragic event occurred during my time at this mine. The union mine picnic was held in town and after heavy rain a group of children were amusing themselves by diving into stormwater drains and riding through the underground water pipes. One child was too big for the pipe and was trapped underwater and drowned. The local mines rescue squads were called out to assist and in the retrieval of the child's body an assistant in the process also died. Myself and approx 5 other people were standing in roughly a foot of muddy water adjacent to the person who died and we were lucky not to end up with the same fate. We nearly had multiple fatalities due to circumstances largely unforeseeable and out of control of the people on the scene at the time. 2 lives were lost due to basic failures in safety.

My next safety position was with an employer organisation. All I will say is that it is a pity industrial relations practitioners are involved in Occupational Health and Safety decision making, industrial relations imperatives and Occupational Health and Safety ones are often not compatible.

From this position I moved to a corporate head office position with a major Australian employer. One of the highlights of this role was working with a very safety committed operations manager. I conducted a series of safety audits with this manager and was really impressed that this one single individual, in a senior management position with a strong safety agenda, could make such a difference (unfortunately managers like this who are willing to really drive safety and create expectations of a high level of safety performance with managers and subordinates are rare-safety is really an area where you get the performance you demonstrate you expect)Another highlight of this period was the introduction of 18 internal standards of Occupational Health and Safety excellence tailored to the organisations safety needs (standards included those for visitor safety, contractor safety,

compliance with statute law, use of personal protective equipment, management commitment, hazard identification/risk assessment, safe working procedures, loss prevention & control, employee involvement, emergency procedures, accident investigation, education/communication, inspections, health & fitness, injury management). The standards were introduced and a comprehensive auditing document was produced to aid annual “Executive Safety Audits” at each site. To my mind this approach was a real turning point for safety in the company and the fact that sites knew they were to be audited against the standards regularly placed a strong focus on safety. I was so impressed with this approach that I currently recommend a similar approach.

In this period the company introduced a detailed competency-based approach to training which had implications for how a range of operational, maintenance and supervisory tasks were undertaken (safety was an integral component of the training). I believe the

approach is a vast improvement on traditional methods of safety training (it is backed by sound research into preferred modes of learning by adults) A comprehensive training needs analysis was undertaken and the outcome was a series of self-paced training modules the learner could complete aided by reference to content experts in the workplace. The modules reflected realistic scenarios in the workplace and involved problem-solving of authentic tasks (the problem-solving, aided by content experts if necessary was the basis of the learning). A powerful effort was made to relate the learning to realistic requirements in everyday work. Another training initiative I thought worked well was a 4 hour Hazard Identification & Control / Risk Assessment course. Participants were introduced to a range of hazard types, encouraged to practically identify hazards in a typical workplace, introduced to a simple method of risk assessment using probability, consequence and exposure, practiced the simple method of risk assessment on typical workplace tasks and applied a hierarchy of controls to typical risks. The training was very practical and participants were issued with a laminated, pocket-sized card outlining the methods. At the end of the training participants had basic skills in identifying hazards, assessing risk and applying controls to typical risks (these skills seem necessary for employees to be able to work safely- I have a strong impression participants thought more about the potential hazards of their work after this training) Some sites were so impressed with this training that they ensured the whole workforce participated.

During my time in this role a taxonomy of personal damage was produced for the industry. I am astounded the industry did not use this powerful tool more in its accident prevention efforts.

Another initiative I lived through was the introduction of a packaged safety management system. My experience suggests to me that organisations should not believe these packaged systems are the single and all-inclusive answer to their safety prayers. They have a place but should be regarded as an adjunct to and not a replacement for a Safety Management System targeted to the real needs of the organisation (refer to Australian Standard 4804 for a basic introduction to how to develop a Safety Management System), Hazard Management Plans that identify the hazards in the organisation, their causes and the controls and internal standards of Occupational Health and Safety excellence tailored to the organisation. These packaged systems can have a place if managed properly. Managed improperly they can cost considerable time, effort and expense with little real return. They do however serve as a useful checklist for things to consider for their relevance to your safety programme.

1994 saw another mining disaster at an Australian mine with 11 men being killed. Occupational Health and Safety professionals and those with general management responsibilities are urged to obtain a copy of the Wardens Enquiry into the disaster, it is a chilling tale of how individuals got it wrong in safety, the report has a number of valuable messages for those interested in safety management in any industry and emphasises the need for both engineering and behavioural change. The particular disaster that occurred in 1994 has been a real turning point for safety in the Australian mining industry and safety is now strongly on the corporate agenda of most mining companies.

Since leaving the employ of mining companies I have been an internal and external Occupational Health and Safety consultant to a number of companies in a number of industries. I have learnt a lot in this period, experienced a number of successes and experienced an amount of frustration. Some of the frustration's I have experienced include-

- ? The major employer who did not have copies of safety legislation on site. It was explained to me that as they did not have the legislation on site they did not know about it and thus had good excuses for not doing it.
- ? The training provider who conducted an Occupational Health and Safety auditors course (a very practical subject) entirely in a class room with no practical component. My studies towards a Bachelor of Education (Adult & Workplace Education), past experience conducting safety training programmes and attending safety training programmes myself has left me with the impression that a considerable amount of safety education is undertaken without reference to modern adult learning principles. Interactive approaches and “learning by doing” are particularly appropriate with adults (refer to the paper

”Adult Learning Principles and Process” by this author)

- ? The company that asked me to develop a Safety Management Plan for them and then had cold feet when they realised I was actually committing them to do something about safety.
- ? I have had a number of occasions when I have spoken to managers about how safety is managed in their facility and left the top office with a warm inner-glow after the managers telling me what a great job they do on safety. I have then examined the implementation of the safety programme in the real world and gained a vastly different perspective. Fancy professionally printed safety policies and procedures, incorporated in the Quality Assurance system and found in the supervisor and managers office do not impress me, what happens where the action happens is the real test of the safety programme (The best time to assess the adequacy of a safety programme can be a Monday morning , for outside work it helps if it is pouring down rain,4am is a good time as people are not really alert then, there is little supervision and shift workers are recovering from the weekend) Safety audits should identify what happens when normal support mechanisms are absent and the pressure is on to perform.

A recent project I thought had very positive benefits to the company involved was while I was working as an external Occupational Health and Safety consultant and involved developing hazard management plans for an underground coal mine(underground coal mining can be a very hazardous operation and as such detailed plans are necessary for management of principal hazards - in the scope of this work a principal hazard was one with the potential to result in one or more fatalities) A risk management approach was taken where principal hazards were identified in each of the discrete business activities of the client company. By using a cross-sectional slice of the workforce in group meetings causes of hazards were identified and recorded on fault-trees Existing and desired controls were identified for each cause. For principal hazards it is suggested one should have at least 1 control in each box of the 9 box model (the 9 box model was developed by the Australian risk management consultancy company A.C.I.R.L.).

### 9 BOX MODEL FOR CONTROLS

	Prevention	Monitoring	Contingency
Eqpt./Engineering			
Procedures			
Skills/Competencies			

With reference to the 9 box model a study into safety management in one company I was associated with revealed they had a lot of prevention controls and the contingency controls (emergency communications procedures, trained rescue-squad members, nice trucks with flashing red lights, lots of first-aid boxes etc) were well developed. Where the company fell down was on monitoring their prevention controls to ensure they were always effective, there is probably a message for a lot of companies in this study.

Once existing controls are identified we need to audit them to assess if they are really effective and working in the real world. New controls have to be implemented. Persons responsible for the controls have to be identified (you need to consider what happens when the person responsible for the control is absent from site) Identifying if those responsible for the controls have the required competencies is an important part of the process as is the follow-up training. The approach that was undertaken was a rigorous one, more complex than outlined briefly here and took a considerable period of time to implement. The company ended up deciding it was necessary to have approx 1600 controls in place and working properly for effective management of principal hazards(this emphasises the complex nature of managing safety in a high risk environment) The process used is relatively simple but thorough and can be applied to any high risk industry not just mining (refer to the paper “The Hazard Management Process” by this author).

In the early 1980’s I attended the Graduate Diploma in Occupational Hazard Management course at Ballarat university and felt this helped me in my role as a mine-site Safety Adviser. In 1997 my wife completed a post-graduate Occupational Health and Safety qualification. In reviewing her assignments, answering her questions and reading her text- books I formed the impression that the course had not really moved on from my days at Ballarat. I have some doubts post-graduate Occupational Health and Safety education at universities really equips the graduate to perform well in what can be an extremely demanding role. Detailed training on how to establish a safety management system seems to be a difficult area for training organisations to come to grips with. When one accesses the Internet and sees how well developed Occupational Health and Safety education/training is in

many overseas countries one is tempted to believe Australia is lagging behind (the Canadian Centre for Occupational Health & Safety, Ontario Industrial Accident Prevention Foundation and the United Kingdom Institute of Occupational Safety & Health are web-sites worth visiting). Based on my experience in the field I take the view that we do not have a very organised approach to Occupational Health and Safety in Australia and that our training for managers and Occupational Health and Safety professionals is partly responsible. My studies in Adult and Workplace Education have revealed a sound theoretical basis to the profession and I would suggest that a sound theoretical basis is absent with the way the safety part of Occupational Health and Safety is taught in Australia.

So in 1999 what is my opinion of how far the Occupational Health and Safety profession has progressed in the last 25 years.? There was a serious incident at a Qld. mine recently where an employee was caught in part of underground mining equipment and his legs had to be amputated to free him. My wife has a caring, intelligent female friend who made the comment to us that according to the paper the incident was the individuals fault. I am not familiar with the particular incident so can not comment on factors essential to the occurrence. As a safety professional I was tempted to remonstrate with her and explain the realities of an employers common law duties and how an incident is a complex mixture of person, machine and environment factors and that there is likely to be a lot more to the incident than simply saying it was the individuals fault. I thought better of it as this is really a societal problem. This comment of our friend said to me that the safety profession in Australia really had not made many gains in the last 25 years.

An estimate of the cost of workplace accidents and disease in Australia that sticks in my mind is one from Worksafe Australia where they estimated the cost as a minimum of \$27 Billion annually (other than the people who are seriously hurt and the safety professionals who really knows or cares about the incidence of workplace accidents and disease in Australia?)

Some of the problems I currently see with Occupational Health and Safety in Australia include these-

- ? There is only half-hearted leadership from government, unions and many companies with regard to safety. Admitting to being a cynic I suggest the rhetoric is not always accompanied by action. I suppose it is naive to think the tripartite partners can put aside their industrial and political agenda when discussing safety.
- ? The media emphasises personal fault in news releases about incidents and does not consider design and system issues that contribute to incidents.
- ? We do not have a centralised, consistent method of reporting and recording incident and disease statistics. How can we examine the beast and learn from it if we do not record and report it in a consistent manner?
- ? In business vast amounts of money can be spent on safety without really defining desired outcomes (I am not doubting peoples motives however, just their effectiveness)
- ? Government, unions and many companies treat safety as a second priority and industrial relations imperititives dominate.
- ? The standard of Occupational Health and Safety practitioner may not be as high as it could be. In Qld the basic requirement to become a qualified Workplace Health Safety Officer is 2 courses of a total duration of some 2 weeks. It is difficult to think we can have a truly professional approach to Occupational Health and Safety with a practitioner who has only received 2 weeks training (most of this training is on the particular states safety legislation and there is little on modern safety management techniques). Managing Occupational Health and Safety successfully is very complex and companies really need professional, high quality advice to assist them if we are going to advance. I see some advantages in a government accredited safety officer course but it runs the risk that employers only look for this qualification when employing safety staff. That is not to say that committed people with just this qualification and operating within their limitations can not have some effect.
- ? The messages of past incidents are not utilised enough in safety decision making. For this to happen past incident information has to be collected, presented and organised in a useable manner.
- ? The Lost Time Injury Frequency Rate predominates discussions about safety performance. How can a company be proud of a decrease of L.T.I.F.R. from 60 to 10 if there have been 2 fatalities and 1 case of paraplegia amongst the lost time injuries? The L.T.I.F.R. trivialises serious personal damage and is a totally inappropriate measure of safety performance. When I worked in the mining industry we used positive measures of how much coal we mined, the cubic metres of overburden the draglines had moved, the number of haultruck tyres fitted in a certain time period and the amount of product coal that went through the washplant. Putting measures on our failures such as reporting accident statistics instead of our successes always seemed counter-productive. With a bit of thought companies can devise positive measures of what is being done to improve safety and this seems more appropriate to me than counting accidents. L.T.I.F.R.. is an outcome measure

not a measure of what the company is doing to improve safety performance.

My grandmother used to say “Look after the pence and the pounds will look after themselves” In the world of traditional safety there seems to be similar thinking that if you prevent minor damage you will automatically prevent major damage. Accident ratio studies (insisting on set ratios between near misses, minor accidents and serious accidents) are prominent and accepted unthinkingly. The result is a furious effort to eliminate lost time injuries in the belief that major incidents will be eliminated in the process. Certainly there are minor incidents that have the potential to result in more extensive damage( and we should learn from them) ,but personal experience tells me the majority of minor damage incidents do not have this potential. It is a matter of looking at the energy that was available to be exchanged in the incident . The concept that preventing the minor incidents will automatically prevent the major ones seems to me to be fundamentally flawed. All organisations have limited resources to devote to safety, it seems more efficient to prevent one incident resulting in paraplegia than to prevent 20 incidents where people have a couple of days off work (some will say this comment is heresy) Somewhere in the push to reduce L.T.I’s ,reduce the L.T.I.F.R. and consequently achieve good ratings in safety programme audits the focus on serious personal damage tends to be lost. I know of companies that have made great reductions in L.T.I.F.R. yet they are still seriously injuring their people.

“Systems Safety” as opposed to traditional safety is used by companies more successful in safety and the focus is on the high risk end of the spectrum.

A method of classifying personal damage that seems appropriate is the following-

CLASS 1-Damage that permanently alters a persons life eg death, paraplegia, amputation of a leg, severe psychological damage.

CLASS 2- Damage that temporarily alters a persons life eg fractured leg that repairs with no lasting impediment ,deep laceration that has no underlying tissue damage and repairs without significant scarring

CLASS 3 Inconveniences a persons life

The report of the Industry Commission(1) 1995 indicates that safety in Australia is fundamentally a class 1 problem (87% of occurrences were class 2 with 18% of cost, 13% of occurrences were class 1 with 82% of cost) This report further strengthens the argument that instead of concentrating on reducing L.T.I.F.R. we should be focusing on Class 1 damage reduction. Class 1 incidents have more energy available to be exchanged than the usual Lost Time Injury and thus require a different preventative approach. Methods of class 1 damage reduction can be found in the paper” Change For The Future-Not Blame For The Past” G.L.McDonald (2)

The message about class 1 damage reduction has yet to sink in to many peoples minds.

In my view Occupational Health and Safety in Australia has made some gains in the last 25 years but when one compares these gains with advances in other spheres of industry and overseas approaches to the function, I would suggest Occupational Health and Safety in Australia does not compare favourably.

I welcome your comments.(anyone wishing copies of the papers mentioned or wishing to comment direct to me can reach me on g\_robtham@one.net.au)

## References

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2. “Change For The Future-Not Blame For The Past”, G.L. McDonald.M.E.,B.Sc., Principal Geoff McDonald & Associates, Brisbane